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UNITED STATES DEPARTMENT OF AGRICULTURE

Bureau of Plant Industry
Division of Barberry Eradication

PROGRESS IN BARBERRY ERADICATION IN 1931
and
Summarized Results Covering the Period 1918-1931.

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BARBERRY ERADICATION IN 1931

and

Summarized Results Covering the Period 1918-1931.

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INTRODUCTION

In the thirteen years during which the barberry eradication campaign has been in progress, approximately eighteen and one-half million rust susceptible bushes have been destroyed in the thirteen North-Central and Western grain-growing States comprising the area. That the eradication of these bushes has resulted in a decided decrease in rust losses is indicated by the fact that during the five-year period, 1916-1920, the average annual loss from stem rust was estimated at 57,000,000 bushels, while for the five-year period, 1926-1930, it was less than 10,000,000 bushels annually.

The eradication of the remaining barberry bushes should further reduce the severity, if not eliminate destructive epidemics of stem rust in the upper Mississippi River Valley. Furthermore, it will retard hybridization of physiologic forms of stem rust which takes place on the barberry leaves resulting in new forms of the fungus capable of attacking varieties of small grain that have previously proven resistant. As a result of past work, the remaining common barberry bushes are few and scattered in some States, while in others, such as Iowa, Wisconsin, Ohio, Illinois, and Michigan, there are many localities in which thousands remain.

The losses that continue to occur can be attributed to two causes: (1) The spread of rust from remaining barberry bushes, and (2) The development of rust in certain years as a result of spores carried by the wind from the Southern States where the red or repeating stage of the disease lives over the winter. Epidemiology studies made since the beginning of the barberry eradication campaign in 1918 have shown that in the

Northern States the early development of stem rust and the most damaging epidemics of the disease are associated with the remaining common barberry bushes. However, during certain seasons when an abundance of rust is present in the South and wind, moisture and temperature conditions favor the northward movement of spores, stem rust may develop in the spring-wheat area as the result of wind-blown inoculum. Rust from this source usually appears later in the growing season and is characterized by a scattered distribution over extensive areas. Unless crops are abnormally slow maturing, serious rust damage ordinarily does not occur.

. The Division of Barberry Eradication is concentrating on attempts (1) to reduce the expense of finding the remaining barberries in those areas in which they are somewhat scattered, and (2) to reduce the cost of eradication in areas in which the bushes are numerous, particularly where they have escaped from cultivation. Progress is being made in developing the initiative of property owners and children with the result that more individuals each year become interested in stem rust control, learn to recognize the common barberry, and realize the necessity for eradicating it.

The common or European barberry, although not native to the United States, was widely distributed over the country for ornamental and hedge purposes. From the original plantings it has spread rapidly as the result of birds and other agencies scattering seed to timber lands, stream banks, fence rows and other uncultivated lands. Until some concrete evidence could be produced that the elimination of this more or less decorative shrub would have a limiting effect upon the destructiveness of stem rust, support of individual property owners in many parts of the area was noticeably lacking. The result of concentrated eradication efforts in some of the more important grain areas has provided a thorough test for recommended control measures and proven the practicability of the work. This is shown by the experiences of many individual farmers who have had little, if any difficulty with rust since barberry bushes in the vicinity of their farms have been eradicated and by the decided reduction in stem rust losses that has come about in the spring-wheat area during the past ten years.

THE DEVELOPMENT OF THE BARBERRY ERADICATION PROGRAM

The interest of property owners in the prevention of stem rust has been increasing rapidly since the elimination of millions of rust-spreading bushes during the early years of the campaign and the establishment of the practicability of barberry eradication as a control measure. In States where the remaining common barberry bushes are few, the farm-to-farm survey method of conducting the program is being replaced with increased efforts along informational lines and detailed seasonal study of rust conditions. The object is to make available to the public information which will enable individuals to actively participate in ridding their own communities of rust-spreading bushes and through study of the rust situation each year to accumulate information regarding localities where the prevalence and the severity of the disease indicates the probable locations of inoculum centers.

In an attempt toward further increasing the effectiveness of the field program during 1931, efforts of locally employed eradication forces were concentrated in areas where barberry bushes are numerous and so situated as to be a continued menace to small grain growers. A proportionally larger number of local people were employed for eradication work in localities where bushes were numerous. The field season was extended in order to obtain a longer period of service for fewer temporary agents selected for their ability to organize eradication crews and develop the informational phase of the campaign. Further attention was given to improving the Quarantine regulations and making more effective contacts with nurserymen to obtain their cooperation in preventing the introduction of susceptible barberry bushes into the principal small grain-producing States. The strictest economy was followed in the administration of travel and other operating expenses.

THE ADMINISTRATION OF BARBERRY ERADICATION DURING 1931.

Organization. The barberry eradication campaign was organized in 1918 under the direction of the Bureau of Plant Industry, United States Department of Agriculture, with the agreement that the program was to be developed jointly with the following thirteen States: Colorado, Illinois, Indiana, Iowa, Michigan, Minnesota, Montana, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin and Wyoming. During the early years of the campaign an agent of the Department of Agriculture was retained in each of the States to supervise and conduct informational activities, survey and eradication, and a limited amount of research. As the campaign progressed and barberry bushes became less numerous in some of the Western States, three District offices were created at Fort Collins, Colorado; Brookings, South Dakota; and Fargo, North Dakota, to continue the work in the Western States, including, in addition to those named above, Nebraska, Wyoming and Montana. Leaders in charge of the ten field offices conducted their work in cooperation with State Colleges and State Departments of Agriculture.

Cooperation. Organizations cooperating with the Division of Barberry Eradication, Bureau of Plant Industry, United States Department of Agriculture, in conducting the barberry eradication campaign are State Colleges of Agriculture, State Departments of Agriculture and many independent agricultural and business organizations within the thirteen States. The Conference for the Prevention of Grain Rust, Minneapolis, Minnesota, an organization of agricultural and business leaders in the eradication area, has, from the beginning, taken an active interest in the campaign and each year furnished liberal financial support in developing the informational side of the program. The Farm Bureau and Grange also have actively supported the work. In the center of the hard red spring-wheat area the North Dakota Retail Merchants Association and Greater North Dakota Association have actively participated in the program.

Finance. Barberry eradication is financed largely through Federal appropriation. Many of the States have made direct cash appropriations and all have given indirect financial aid in service and equipment. The Federal money available for expenditure during the fiscal year ending June, 1932, was approximately \$300,000. The total direct and indirect aid furnished by States for the same period was \$87,540.

THE PROGRESS MADE IN BARBERRY ERADICATION DURING 1931.

The activities of the barberry eradication campaign may be classified under three headings: Survey and eradication, Informational Activities, and Investigations. A brief report of the results in each of these fields of activity follows:

SURVEY AND ERADICATION. Territory in which eradication efforts were concentrated during the past year was selected after careful consideration had been given to the requests for assistance in stem rust control received from county agents and individual grain growers. Rust data accumulated during past years were reviewed in an attempt to determine localized areas in which damaging epidemics of stem rust recurred at frequent intervals. The final selection of counties or parts of counties to be given attention was made by the resident leader in charge after discussing needs and opportunities with State cooperators and Washington officials. The final plan for procedure was approved by the Principal Pathologist in Charge of the Division.

Although many barberry bushes remain scattered throughout the thirteen States, by concentrating efforts of eradication during past years in localities where bushes were more likely to produce destructive epidemics of rust, it has been possible to greatly decrease losses from this source.

During 1931 common barberries were found on 1,717 properties. More than 171,000 bushes were destroyed. The total number of bushes located and destroyed during the past year is much less than in some previous years. One of the principal reasons for this difference is that within the western part of the barberry eradication area the campaign has progressed to the point where remaining bushes are much less numerous than they were a few years ago. It is important, however, that all common barberries be destroyed to insure future protection from rust and to prevent the remaining bushes from reseeding extensive areas.

Applying crushed rock salt to the crown of barberry bushes continues to be the most popular, economical and efficient method of eradication. Bushes properly treated with salt will never sprout; consequently, digging or grubbing is resorted to only when the application of crushed rock salt would prove injurious to other shrubbery or trees. During the season approximately 195 tons of salt were used.

INFORMATIONAL ACTIVITIES. A costly part of the barberry eradication campaign is to locate bushes that have developed from seeds scattered by birds. If the desired progress is to be made it is necessary for grain growers and those residing in grain-producing areas to become more generally informed regarding the common barberry and its specific relation to the dissemination of stem rust. During the past year considerable revision was made in plans for continuing the barberry eradication program. A substantial reduction in the amount of Federal funds available made decided curtailment in field activity necessary. In keeping with the policy to encourage individual property owners to assume more of the responsibility for clearing their own farms and communities of barberry bushes, purely service work was retarded in order that more time and attention could be given to the informational side of the program. Although the more intensive type of informational work is being met with a public response beyond expectations, the continuance of a certain amount of service work must remain an important part of the program in order to insure the eradication of barberry bushes growing on public lands, in cities and towns, and in non-agricultural communities, as well as in the vicinity of grain fields.

Interest of Property Owners Increasing. The fact that property owners are ready to take an active part in stem rust control has been clearly demonstrated time and again in the experience of field agents. It is apparent, however, that satisfactory completion of the work will require that the Department of Agriculture and cooperating agencies provide local leadership to insure a thorough search for the bushes and to supervise eradication. In many localities where barberry bushes are found numerous a careful survey by agents of the Department undoubtedly will prove necessary.

The practical development of the informational phase of the barberry eradication campaign requires a well-organized extension program, local contact and leadership, and the judicious distribution of printed information setting forth in popular form the cause, effect, and recommended means of controlling stem rust.

Individual Project Reports. Detailed reports covering individual projects in each of the thirteen States are on file in the Division of Barberry Eradication. The general informational program includes demonstrations at fairs and other public gatherings, joint meetings with county agents and other agricultural workers, assistance with instruction in general science and agricultural classes in rural and city schools and numerous projects with juvenile organizations such as Future Farmers of America and 4-H Clubs.

Printed information and illustrative laboratory materials pertaining to the control of stem rust and other diseases of economic crops have been used, during the past two years, in general science and agricultural classes in public schools of the spring wheat-growing States attended by more than 100,000 pupils. Some indication of the resulting value to the campaign is suggested in the fact that more than 400 pupils have reported the location of barberry bushes. As a direct result of these reports more than 7,000 bushes have been destroyed.

In Sioux Falls, South Dakota, the high school biology instructor is making extensive use of materials pertaining to the control of stem rust in his science classes. As a follow-up to classroom instruction he is directing his students in a shrubbery survey of the city and has offered the assistance of the school in recording the location of remaining barberry bushes. His method of developing a practical objective for his classroom work is being adopted in many other South Dakota schools. The voluntary service to be received from these groups will materially hasten the completion of the program in that State.

Another outstanding example of group cooperation is recorded in the cooperative project being conducted with weed inspectors in approximately twenty counties in Minnesota. In southwestern Minnesota, farmers have organized, with the help of county agents, in an attempt to more effectively combat weeds. Under the plan one man on each section of ground is designated as local weed inspector. These people make regular inspections of the farms in their communities to see that weeds are not allowed to produce seed. The same consideration is being given to the eradication of common barberry as to other noxious weeds in these counties.

The identification of the common barberry is being emphasized in the informational work. As more people learn to recognize it, additional responsibility will be removed from the Federal and State agencies in connection with eradication activities.

Preparation of Materials. In the preparation of illustrated materials and printed matter to be used in connection with the informational work, an attempt is being made to fit the materials to the particular program being developed. During the past year the Conference for the Prevention of Grain Rust in Minneapolis has made possible the preparation of a set of lecture charts depicting the life history of the black stem rust, and, accepted methods for controlling the disease. These charts are being used extensively by agents when talking before groups of adults or children.

Miscellaneous Publication #131 shows in colors the characteristics of the common barberry bush, the development of stem rust from early spring until late fall and the effect stem rust has upon the wheat crop. The publication includes a brief summary of the principal facts concerning barberry eradication and provides an economical piece of literature for distribution to those interested in small grain production.

A lesson plan and materials suitable for laboratory instruction have been made available for teachers in rural and city schools. As previously stated, this material is being used extensively and has been found by State Department of Education officials valuable as supplementary information for teachers to use in general science and agricultural courses.

In addition to the above materials, leaders in each of the States have made restricted use of form letters, brief progress reports and magazine and newspaper articles.

INVESTIGATIONS. The development and spread of cereal rusts in the small grain areas extending from Mexico through the Mississippi River Valley to the Canadian border is studied each year to further add to accumulated information regarding different sources of inoculum and to determine, in so far as possible, the rapidity and extent of migration of stem rust spores. By determining each year the physiologic forms of the rust present on grain stems in widely separated localities it is possible to obtain some indication as to whether primary infection has resulted from spores disseminated from local barberry bushes, or, spores carried by the wind from distant localities. The physiologic form study and other field observations are supplemented with data collected from slides exposed from buildings and airplanes at various points throughout the Mississippi River Valley. The number and kind of rust spores caught on vaselined microscope slides, taking into consideration wind direction and other climatic factors, gives some indication of the spore content of the air and probable extent and rapidity of the movement of inoculum.

There are many forms of stem rust and each reacts differently toward individual host plants. For example, there is one which causes rust on oats but not on wheat, barley or rye. Another causes rust on wheat and barley and to a limited extent on rye but not on oats. Still another causes rust on rye and barley but not on wheat and oats. Others cause rust on timothy but not to any extent on any of the cereals. Some rust blue grass but do not attack any of the small grains. These varieties or forms of rust have been given a number in order that one may be distinguished from another. Grain may be heavily rusted near barberry bushes one year and the grain near them comparatively free from the disease the next year, although the bushes again may be badly rusted. The reason is that the kind of grain near the barberry bushes may not be susceptible to the form of rust present.

Physiologic Form Survey. As a result of the physiologic form survey, sixteen different forms were found when 552 identifications of rust on wheat stems were made. Five of these were widely distributed as in 1929-30 and they are listed in the order of their prevalence: Forms 36, 49, 38, 11 and 21. All five forms were prevalent in Texas and Forms 38 and 49 were common in Mexico. The number of specimens containing Form 49 diminished rapidly as the rust survey progressed northward. On the other hand, the prevalence of Form 36 increased.

More than 300 collections of oat stem rust were identified consisting of either Form 2 or 5. Form 2 was the most prevalent. Both, however, occurred in all States from which three or more collections were received.

From aecial collections, seven forms were isolated, two of them for the first time. The other five were the same as those identified from wheat collections. Forms 38 and 49 were isolated most frequently from the aecial material instead of 36 and 49 as in the case of wheat collections. Since only a comparatively few barberry specimens were collected, too much importance cannot be attached to these figures.

Epidemiology. During 1931 a heavy epidemic of stem rust developed in most fields of grain in central and northern Mexico. Stem rust over-wintered in a small percentage of the fields of wheat in the central and northern parts of Texas and on oats in the southern and central parts. However, during the season the disease developed slowly and the northward migration occurred only in short waves. Field observations indicate that inoculum from the south arrived in the spring-wheat area a few days later in 1931 than in the average year.

Nursery Inspection. As a part of the cooperative work with nurserymen, extensive tests are being conducted to determine the relative susceptibility to stem rust of many varieties of barberry developed or introduced in recent years. A handbook, containing information including drawings of the more commonly grown varieties, has been prepared as a reference for Quarantine inspectors and others to use in making identifications. Provision is made for inspecting nurseries where barberry bushes are offered for sale in keeping with the requirements of Quarantine (38 Revised) governing distribution of these bushes.

Susceptibility Studies. In 193 series consisting of from three to six plants each, 41 species and varieties of barberry were inoculated with stem rust. In each series one or more plants of species or varieties known to be susceptible were used as checks. Telia of five varieties of stem rust provided the inoculum although the Socalis variety was the one most commonly used. Most of the varieties of barberry tested recently have proven resistant or immune. The study of susceptibility of different varieties is being developed as rapidly as possible in order to classify all species of Berberis either as susceptible, resistant, or immune to stem rust.

Other stem rust studies directly related to the control program being conducted in this Division include overwintering of urediniospores in the north, development and spread of stem rust in the vicinity of barberry bushes and the occurrence and distribution of stem rust in the spring-wheat area.

Chemical Investigations. Research on chemical methods of eradication begun in 1930 as a cooperative project with the Division of Blister Rust Control was continued with a study of bushes treated at Maumee, Ohio, in 1930 and the establishment of new test plots at Pennsylvania Furnace, Pennsylvania. Some of the new chemicals have given such promising results that it is planned to make more extensive trials of them in areas of escaped bushes in Illinois, Wisconsin, Colorado and Minnesota. In the meantime, the use of salt, which has proven an effective killing agent, will be continued although it is heavy to handle in large amounts.

FUTURE PLANS FOR BARBERRY ERADICATION

In outlining the most effective type of field program for the 1932 field season, taking into consideration probable appropriations for continuing the work, a careful analysis of the present state of progress in barberry eradication has been made with regard to locations where bushes are known to exist and communities where the severity of stem rust indicates possible sources of local infection. Conditions vary widely in different parts of the area but for administrative purposes the territory included in the barberry eradication area may conveniently be divided into four classes:

In Class I most of the land is either cultivated or occupied by well-kept pastures or woodlots. The area includes most of Ohio, Indiana, Iowa, southern Michigan and parts of Wisconsin, Minnesota, South Dakota and Nebraska. In these States intensive farming methods are practised. Many barberry bushes have been planted and many have escaped cultivation. Survey involves continued contact with property owners and a large portion of the time is spent in finding and killing barberries in orchards, gardens and woodlots in

the immediate vicinity of farm buildings. An extreme example is Montgomery County in Ohio where one or more barberry bushes were found on practically every square mile of territory in the county. Most of these were bushes that had grown from seeds scattered by birds and other agencies.

In Class II most of the area is made up of rough woodland, creeks, rivers and pastures. It includes large areas in Wisconsin, parts of Ohio, Michigan, Illinois, Iowa, and Minnesota. In Wisconsin and certain parts of the other States named the most extensive problem is that of conducting eradication activities in large areas of escaped bushes. This requires a careful survey or inspection of timbered land, creek bottoms and pastures. In addition, there are numerous more or less extensive areas of escaped bushes in Indiana and eastern Nebraska.

In Class III most of the area is open plains and prairies with relatively little native or planted shrubbery. Most of North Dakota, South Dakota, eastern Montana, western Nebraska, eastern Colorado, eastern Wyoming, western Minnesota and southern Illinois, is included in this class. In the Dakotas there is a very distinct type of territory to be covered. Natural vegetation is less plentiful than in States farther east. Fewer barberries were planted and climatic conditions are such that they have not increased rapidly in number. The problem here is to carefully search city and rural properties that have been planted with shrubbery and where barberry bushes are found to intensively scout the adjacent woodlots, river banks and stream beds for possible escapes. A single barberry bush in this area where hard spring-wheat is the major cash crop may cause an enormous amount of damage in a single season, providing weather conditions favor the development of rust.

Most of the area in Class IV is made up of hillsides and mountain-sides that are either heavily timbered or covered with dense brush. This type includes the western part of Colorado, Montana and

Wyoming, and some territory adjacent to the Mississippi and other large rivers. The amount of territory in this division is not so extensive as that in each of the other three. However, in order to successfully complete the eradication program, prevent reinfestation of areas now free from bushes and provide local insurance from stem rust epidemics, it is believed important to continue eradication efforts in these areas.

PROPOSED PLANS FOR CONTINUING BARBERRY ERADICATION

In proposing tentative plans for procedure for the coming field season consideration has been given to the probable Federal and State appropriations for this work. The allotment of funds to field offices has been carefully studied in an attempt to balance the amount of informational and survey work authorized in the different States with the urgency of needs. Some revision of field methods is planned so as to most effectively utilize the limited funds available. Administrative and routine expenditures will be reduced to a minimum both in the Washington office and in the field.

A general policy for procedure throughout the area based upon the different classes of territory described above involves:

- (1) The use of local labor for survey work in areas of escaped bushes or in territory where extensive pastures or timber lands must be carefully inspected.
- (2) The employment of fewer and better qualified men during longer periods of time for continuing the informational and contact work.
- (3) Collecting of detailed information regarding occurrence and distribution of stem rust in the more important small grain districts as an aid to determining where available funds may be most effectively utilized.
- (4) The development of more voluntary activity on the part of property owners and children in the eradication of known bushes.

For territory included in Class I which is typical of large areas in Ohio, the following procedure, subject to local variations, will serve as a guide in developing a satisfactory program.

One man with experience and training will be employed to organize the barberry program in a limited area comprising one or two counties or parts of counties depending upon local conditions. His efforts will be concentrated in an attempt to induce local adults and children to look for and report barberry bushes. If an extensive eradication program develops, local labor will be employed to assist property owners in eradication. Where the regular farm-to-farm survey is continued, the trained man can make the contacts in the community and employ local labor to promptly complete the intensive survey and eradication work. The responsibilities of the men placed in charge of local activity will include a knowledge of the rust situation in his District. This may be obtained through personal observations and through data furnished him by members of the Future Farmers of America or similar organizations whose cooperation has previously been arranged.

Class II territory requires the maintenance of an effective and economical eradication organization. In States such as Wisconsin, numerous areas of common barberry are located where the eradication problem is too extensive to be handled by individuals in the community. Under such conditions it is proposed to employ local eradication crews which will be supervised by a trained agent capable of making the necessary contacts and conducting other phases pertaining to the informational side of the work. Eradication of large areas of escaped bushes does not progress rapidly and territory to be given immediate attention will be selected on the basis of the proximity of bushes to grain fields, past history of stem rust in the community, and the probability of future spread of barberry bushes from seed. In those areas requiring prolonged intensive work the value of informational activities will not be overlooked. Bushes will reappear in the future and a well-informed public will greatly assist in retarding the rapid spread which has heretofore occurred.

Territory in North Dakota is more or less representative of that included in Class III. The problem of eradication becomes quite distinct from those discussed above. Although locations of barberry bushes are few and widely scattered, those remaining are important from the economic point of view and should be eradicated as promptly as possible. A practical program for locating these bushes undoubtedly will require a highly effective informational organization. Intensive scouting which was necessary in the early part of the campaign is too expensive a method for locating the remaining bushes. In North Dakota and States containing similar type of territory, the combination of a carefully organized informational program and an intensive rust survey should indicate the possible sources of rust infection and provide a sound basis on which to proceed with future control efforts. It is believed one man skilled in extension methods and with previous experience in barberry eradication could develop a program in an area comprising not more than two counties which would lead to the location of a large percentage of the remaining bushes. For this reason specific attention is being given to the selection of temporary agents who will continue the field work in this class of territory. It is intended that these men should be employed for a period of eight or nine months each season and during this time confine their efforts to restricted areas. By taking advantage of informational opportunities and encouraging grain growers to report either badly rusted grain fields or known locations of barberry bushes the agent in charge of local activity should be able to locate many of the remaining bushes by the close of the field season. In Class III territory the future eradication problems will not prove difficult. Where areas of escaped bushes are located it is believed that eradication activities can be handled with local assistance as suggested for Classes I and II.

Class IV territory, although quite different with respect to location, natural vegetation, and relation to the general rust situation, hardly requires a separate discussion. Where extensive areas of bushes are found it is probable the situation can most economically be cared for with local labor as suggested in Classes I and II. Escaped barberry bushes in dense undergrowth, along rivers and adjacent to mountains present a difficult problem. If suitable local assistance can be obtained for conducting this type of survey, the cost will be greatly reduced.

The following forms and maps provide a detailed statistical record of the progress made in barberry eradication since the beginning of the campaign in 1918.

First Survey, Bushes and Seedlings, January 1 to December 31, 1931.

Table 2. Data showing, by States, the number of barberry bushes found and destroyed in all surveys, and the number of seedlings found and destroyed in first and second surveys in the calendar year January 1, to December 31, 1931.

State	Number of bushes found -			Number of bushes destroyed			Number of seedlings -			
	In cities		Total	Dug		Total	Destroyed			
	and towns	Escaped		Treated	Found		Dug	Treated	Total	
Colo.	67	657	695	762	619	143	300	290	10	300
Ill.	4,260	6,316	6,744	11,004	3,748	7,256	5,492	5,060	432	5,492
Ind.	45	1,962	2,041	2,086	87	1,999	337	62	275	337
Iowa	613	2,719	2,881	3,494	201	3,293	2,519	187	2,332	2,519
Mich.	2,632	12,239	12,503	15,135	3,005	12,130	41,412	16,717	24,695	41,412
Minn.	38	3,774	3,841	3,879	45	3,834	177	60	117	177
Mont.	3	0	24	27	3	24	179	107	72	179
Nebr.	16	22	72	88	4	84	131	6	125	131
N. Dak.	11	0	33	44	15	29	639	0	639	639
Ohio	266	9,042	9,444	9,710	329	9,388	13,015	6,602	6,413	13,015
S. Dak.	14	154	157	171	21	150	281	258	23	281
Wis.	59	29,050	29,056	29,115	648	29,038	28,816	482	30,489	30,971
Wyo.	1	0	1	2	1	1	2	0	2	2
Total	8,025	65,935	67,492	75,517	8,726	67,369	93,300	29,831	65,624	95,455

First Survey, Bushes and Seedlings, April 1, 1918 to December 31, 1931.

Table 4. Data showing, by States, the number of barberry bushes found and destroyed in all surveys, and the number of seedlings found and destroyed in first and second surveys, from April 1, 1918 to December 31, 1931.

State	Number of bushes found -			Bushes		Number of Seedling -		
	Incities and towns	In country		Destroyed	Total	Found	Destroyed	
		Escaped	Total					
Colorado	20,361	4,692	7,067	27,428	19,830	19,830		
Illinois	120,568	246,530	292,275	412,843	2,184,563	2,184,563		
Indiana	78,166	110,504	126,224	204,390	24,124	24,124		
Iowa	654,205	88,143	178,629	832,834	216,758	216,758		
Michigan	58,315	655,097	733,032	796,397	4,949,129	4,949,129		
Minnesota	593,340	96,333	211,017	804,357	64,266	64,266		
Montana	7,366	2,960	5,800	13,236	21,924	21,924		
Nebraska	73,577	9,193	23,423	100,000	24,446	24,446		
North Dakota	14,753	150	9,005	23,753	2,331	2,331		
Ohio	221,328	177,423	199,359	420,687	1,372,929	1,372,929		
South Dakota	24,039	21,763	37,685	61,774	29,306	29,306		
Wisconsin	281,723	3,270,850	3,283,393	3,565,116	1,438,132	1,438,132		
Wyoming	3,953	1	256	4,209	251	251		
Total	2,151,744	4,685,659	5,115,295	7,267,013	10,893,511	10,893,505		

Second Survey, Bushes and Seedlings, January 1 to December 31, 1931.

Table 6. Data showing, by States, the number of barberry bushes and seedlings found and destroyed on second survey in the barberry eradication campaign in the calendar year January 1 to December 31, 1931.

State	Number of bushes found -			Number of bushes destroyed :			Number of seedlings -				
	In cities and towns :	In country :	Escaped :	Total :	Dug :	Treated :	Total :	Found :	Dug :	Treated :	Destroyed :
Colo.	60	138	145	205	172	33	305	275	275	0	275
Ill.	4,260	6,316	6,744	11,004	3,748	7,256	11,004	5,442	5,010	432	5,442
Ind.	16	0	9	25	16	9	25	62	62	0	62
Iowa	69	1,739	1,787	1,856	42	1,814	1,856	1,410	0	1,410	1,410
Mich.	467	9,866	10,119	10,586	781	9,805	10,586	28,872	5,850	23,022	28,872
Minn.	25	3,545	3,608	3,633	20	3,613	3,633	157	40	117	157
Mont.	0	0	24	24	0	24	24	0	0	0	0
Nebr.	16	15	30	46	1	45	46	6	6	0	6
N.Dak.	0	0	0	0	0	0	0	50	0	50	50
Ohio	106	1,956	2,086	2,192	147	2,045	2,192	1,193	130	1,063	1,193
S.Dak.	2	5	7	9	8	1	9	0	0	0	0
Wis.	27	19,512	19,515	19,542	44	19,498	19,542	20,338	421	19,917	20,338
Wyo.	1	0	1	2	1	1	2	2	0	2	2
Total	5,049	43,092	44,075	49,124	4,980	44,144	49,124	57,807	11,794	46,013	57,807

Table 7. Data showing, by States, the number of properties on which barberry bushes and seedlings were found and destroyed on second survey in the barberry eradication campaign from January 1, 1922, to December 31, 1931.

State	: Number of : : counties :	: Number of properties on which : bushes were found :	: Total number of pro- : perties cleared of :	: Number of properties on which : seedlings were -								
:	: In country :	: Total :	: bushes :	: Destroyed :								
:	: cities :	: in :	: : Total :	: Found :								
:	: and escaped :	: Total :	: Dug :	: Treated :								
:	: towns :	: bushes :	: and :	: Total :								
:	: : :	: : country :	: : : :	: : : :								
Colo.	30.24	104	123	179	283	133	150	283	36	11	25	36
Ill.	13.15	1,000	726	1,021	2,021	1,110	911	2,021	254	204	50	254
Ind.	13.26	255	101	254	509	305	204	509	47	20	27	47
Iowa	33.41	146	487	747	893	186	706	892	174	39	135	174
Mich.	6.24	88	110	188	268	160	108	268	61	37	24	61
Minn.	54.20	131	357	699	830	274	556	830	115	30	85	115
Mont.	14.55	6	31	42	48	11	36	47	6	5	1	6
Nebr.	44.39	102	145	406	508	90	418	508	62	32	30	62
N. Dak.	37.42	52	0	97	149	44	105	149	15	3	12	15
Ohio	9.32	421	144	345	766	579	187	766	80	53	27	80
S. Dak.	39.00	60	58	226	286	48	238	286	13	7	6	13
Wis.	14.01	344	985	1,175	1,519	503	1,016	1,519	406	187	219	406
Wyo.	10.23	6	-0-	8	14	4	10	14	3	1	2	3
Total	319.42	2,715	3,267	5,379	8,094	3,447	4,645	8,092	1,272	629	643	1,272

Second Survey, Bushes and Seedlings, January 1, 1922 to December 31, 1931.

Table 8. Data showing, by States, the number of barberry bushes and seedlings found and destroyed on second survey in the barberry eradication campaign from January 1, 1922 to December 31, 1931.

State	Number of bushes found -			Number of bushes destroyed			Number of seedlings -			
	In cities and towns	In country		Total	Dug	Treated	Found	Dug	Treated	Total
		Escaped	Total							
Colo.	637	1,125	1,316	1,953	781	1,172	1,953	1,554	7,516	9,070
Ill.	7,563	113,023	115,511	123,074	27,394	95,680	123,074	43,143	11,140	59,283
Ind.	778	3,277	3,742	4,520	852	3,668	4,520	2,174	4,875	7,049
Iowa	2,132	11,518	15,629	17,761	1,220	16,539	17,759	4,102	118,522	122,621
Mich.	597	17,372	17,760	18,357	3,603	14,754	18,357	15,205	36,397	51,602
Minn.	967	9,356	12,733	13,700	2,732	10,968	13,700	890	7,492	8,382
Mont.	6	845	959	965	111	853	964	584	1,000	1,584
Nebr.	706	3,377	6,239	6,945	1,644	5,301	6,945	4,634	10,292	14,926
N. Dak.	327	0	1,956	2,283	510	1,773	2,283	255	540	795
Ohio	1,004	2,821	3,481	4,485	1,261	3,224	4,485	12,476	8,847	21,323
S. Dak.	496	390	2,078	2,564	423	2,141	2,564	1,129	263	1,392
Wis.	1,192	158,105	159,083	160,230	18,747	141,533	160,230	49,436	132,516	181,952
Wyo.	7	0	60	67	5	62	67	40	158	198
Total	16,402	321,209	340,552	356,954	59,233	297,668	356,951	140,622	339,558	480,180

Resurvey, Sprouting Bushes and Seedlings, January 1
to December 31, 1931.

Table 10. Data showing, by States, the number of sprouting bushes and seedlings found and destroyed on resurvey in the barberry eradication campaign in the calendar year January 1 to December 31, 1931.

State	: Number of sprouting bushes found—			: Number of sprouting bushes destroyed			: Number of seedlings—		
	: In cities	: In country	: Total	: Dug	: Treated	: Total	: Found	: Dug	: Treated
: and towns: Escaped: Total: Total: Total: Total: Total: Total: Total: Total: Total									
Colo.	0	0	0	0	0	0	10	0	10
Ill.	563	79	136	701	112	569	701	50	50
Ind.	2	1	7	9	9	1	10	0	0
Iowa	132	570	700	832	120	712	832	103	178
Mich.	101	1,685	1,691	1,792	114	1,678	1,792	125	125
Minn.	1	5	8	9	2	7	9	0	0
Mont.	0	0	1	1	1	0	1	172	72
Nebr.	0	0	0	0	0	0	0	0	0
N. Dak.	31	0	45	76	16	60	76	503	503
Ohio	35	1,460	1,468	1,503	50	1,453	1,503	5,029	3,790
S. Dak.	1	0	23	24	1	23	24	22	22
Wis.	5	79	79	84	5	79	84	4,796	4,796
Wyoming	0	0	0	0	0	0	0	0	0
Total	871	3,879	4,160	5,031	430	4,602	5,032	14,778	9,496
								5,282	14,778

Resurvey, Properties, April 1, 1918 to December 31, 1931.

Table II. Data showing, by States, the number of properties on which sprouting bushes and seedlings were found and destroyed on resurvey in the barberry eradication campaign from April 1, 1918 to December 31, 1931.

:Number of properties on which sprout-:Total number of properties:Number of properties on									
:ing bushes were found-:cleared of sprouting bushes:which seedlings were -									
:In country:Total in:Found:Destroyed									
State	In cities:	Having	Total:	cities and	Dug	Treated	Total	Found	:
:	and towns:	escaped:	:	country	:	:	:	:	:
:	bushes:	:	:	:	:	:	:	:	:
:	:	:	:	:	:	:	:	:	:
Colo.	1,460	114	193	1,653	1,433	220	1,653	107	88
Ill.	495	489	898	1,393	661	732	1,393	442	89
Ind.	185	149	290	475	325	149	474	53	16
Iowa	406	416	1,187	1,593	754	839	1,593	297	149
Mich.	161	134	311	472	388	84	472	196	191
Minn.	764	709	1,479	2,243	1,701	542	2,243	2,281	157
Mont.	130	9	63	193	170	23	193	45	29
Nebr.	224	39	455	679	367	312	679	8	6
N.Dak.	336	0	266	602	260	342	602	12	0
Ohio	1,506	309	1,069	2,575	2,207	368	2,575	745	565
S.Dak.	343	41	369	712	515	197	712	103	49
Wis.	934	720	1,027	1,961	1,371	590	1,961	363	175
Wyo.	34	0	10	44	33	7	40	7	7
Total	6,978	3,129	7,617	14,595	10,185	4,405	14,590	4,659	3,683
									976

Eradication, 1931

28.

Table 13. Data showing, by States, the number of original bushes, sprouting bushes, and seedlings dug and treated, and the total number destroyed by both methods, from January 1 to December 31, 1931.

State	Original Bushes			Sprouting Bushes			Seedlings			Totals		
	Dug	Treated	Total	Dug	Treated	Total	Dug	Treated	Total	Dug	Treated	Total
Colo.	619	143	762	0	0	0	290	10	300	909	153	1,062
Illinois	3,748	7,256	11,004	112	589	701	5,060	432	5,492	8,920	8,277	17,197
Ind.	87	1,999	2,086	9	1	10	62	275	337	158	2,275	2,433
Iowa	201	3,293	3,494	120	712	832	187	2,332	2,519	508	6,337	6,845
Mich.	3,005	12,130	15,135	114	1,678	1,792	16,717	24,695	41,412	19,836	38,503	58,339
Minn.	45	3,834	3,879	2	7	9	60	117	177	107	3,958	4,065
Mont.	3	24	27	1	0	1	107	72	179	111	96	207
Nebr.	4	84	88	0	0	0	6	125	131	10	209	219
N. Dak.	15	29	44	16	60	76	0	639	639	31	728	759
Ohio	329	9,388	9,717	50	1,453	1,503	6,602	6,413	13,015	6,981	17,254	24,235
S. Dak.	21	150	171	1	23	24	258	23	281	280	196	476
Wisconsin	648	29,038	29,686	5	79	84	482	30,489	30,971	1,135	59,606	60,741
Wyoming	1	1	2	0	0	0	0	2	2	1	3	4
Total	8,726	67,369	76,095	430	4,602	5,032	29,831	65,624	95,455	38,987	137,595	176,582

ERADICATION 1918 to 1931

Table 14. Data showing, by States, the number of original bushes, sprouting bushes, and seedlings dug and treated and the total number destroyed by both methods from April 1, 1918 to December 31, 1931.

State	Original Bushes		Sprouting Bushes		Seedlings		Totals	
	Dug	Treated	Dug	Treated	Dug	Treated	Treated	Totals
Colo.	25,217	2,210	5,181	1,841	2,281	17,549	32,679	21,600
Ill.	204,022	208,821	10,578	12,858	479,690	1,704,873	694,290	1,926,552
Ind.	99,614	104,774	17,954	2,058	4,006	20,118	121,574	126,950
Iowa	775,572	57,256	16,035	16,630	32,875	183,883	824,482	257,769
Mich.	386,486	409,911	2,345	3,309	1,472,619	3,476,510	1,861,450	3,889,730
Minn.	781,945	22,412	40,934	11,734	27,214	37,074	850,093	71,220
Mont.	10,896	2,342	5,114	224	18,065	3,859	34,075	6,425
Nebr.	91,817	8,183	12,577	4,395	6,517	17,929	110,911	30,507
N. Dak.	20,112	3,646	395	2,379	543	2,288	21,050	8,313
Ohio	253,003	167,684	13,678	7,116	149,389	1,723,540	416,070	1,898,430
S. Dak.	49,259	12,515	36,633	6,572	25,553	3,753	111,445	22,840
Wis.	3,354,592	210,515	19,522	73,298	177,623	1,310,503	3,551,737	4,594,316
Wyo.	4,145	64	553	21	93	158	4,791	243
Totals	6,056,680	1,210,333	181,499	142,435	2,396,468	8,502,037	8,634,647	9,854,805
								18,489,452

Chemical Treatment, January 1 to December 31, 1931.

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Table 15. Data showing, by States, the number of properties on which barberry bushes and sprouting bushes were treated with chemicals, and the number of bushes, sprouting bushes and seedlings treated from January 1 to December 31, 1931.

State	Number treated									
	With Salt		With Sodium Arsenite		With Other Chemicals		Total			
	: Proper--	: Seed-	: Proper--	: Seed-	: Proper--	: Seed-	: Proper--	: Seed-	: Bushes	: Seed-
	: ties	: Bushes	: ties	: lings	: ties	: lings	: ties	: lings	: ties	: lings
Colorado	7	128	0	0	3	15	0	0	10	143
Illinois	245	7,835	0	0	9	10	0	0	254	7,845
Indiana	28	1,995	0	0	3	5	0	0	31	2,000
Iowa	175	3,340	0	0	16	665	567	191	4,005	2,332
Michigan	80	13,808	0	0	0	0	0	80	13,808	24,695
Minnesota	102	3,822	0	0	10	19	0	112	3,841	117
Montana	1	24	0	0	0	0	0	1	24	72
Nebraska	14	54	0	0	12	30	0	26	84	125
North Dak.	13	89	0	0	0	0	0	13	89	639
Ohio	95	10,832	0	0	3	9	0	102	10,841	6,413
South Dak.	26	173	0	0	0	0	0	26	173	23
Wisconsin	202	29,117	0	0	0	0	0	202	29,117	30,489
Wyoming	1	1	0	0	0	0	0	1	1	2
Total	993	71,218	0	0	56	753	567	1,049	71,971	65,624

Chemicals, Quantities Used, January 1, to December 31, 1931.

Table 16. Data showing, by States, quantities of chemicals used in the barberry eradication campaign from January 1 to December 31, 1931.

State	Salt (Tons)				Other Chemicals				Kerosene (Gallons)		
	Furnished by -				Furnished by -				Furnished by -		
	Property Owner	State Agency	C. P.	G. R.	U.S.D.A.	Total	C. P.	G. R.	U.S.D.A.	Property Owner	Total
Colo.	0	0	0	0	.64	.64	0	0	0	0	0
Ill.	0	0	0	0	23.879	23.879	0	0	0	0	61
Ind.	.01	0	0	0	4.227	4.237	0	0	0	0	17
Iowa	.005	0	0	0	12.02	12.025	0	0	0	0	730
Mich.	0	0	0	0	34.02	34.02	0	0	0	0	0
Minn.	.008	0	0	0	8.604	8.612	4100.5 ^{1/}	4 ^{2/}	4104.5	0	0
Mont.	0	0	0	0	.33	.33	0	0	0	0	0
Nebr.	0	0	0	0	1.67	1.67	0	0	0	0	93
N. Dak.	.65	.2	0	0	.1	.95	0	0	0	0	0
Ohio	0	8.37	0	0	7.46	15.83	0	0	0	0	7
S. Dak.	0	0	0	0	1.0	1.0	0	0	0	0	0
Wis.	.02	58.638	0	0	33.472	92.13	0	0	0	0	0
Wyo.	0	0	0	0	.025	.025	0	0	0	0	0
Total	0.693	67.208	0	0	127.447	195.348	4100.5	4	4104.5	0	908

1/ 4100 c.c. Ethylene oxide + .5 Ammonium thiocyanate
2/ 4 lb. Ammonium thiocyanate

Chemical Treatment, September 1, 1921, to December 31, 1931.

Table 17. Data showing, by States, the number of properties on which barberry bushes and sprouting barberry bushes were treated with chemicals, and the number of bushes, sprouting bushes, and seedlings treated from September 1, 1921, to December 31, 1931.

State	Number treated											
	With Salt			With Sodium Arsenite			With Other Chemicals			Total		
	Proper-	Bushes	Seed	Proper-	Bushes	Seed	Proper-	Bushes	Seed	Proper-	Bushes	Seed
	ties		lings	ties		lings	ties		lings	ties		lings
Colo.	407	3,943	17,549	0	0	0	14	108	0	421	4,051	17,549
Ill.	3,100	216,618	1704,689	34	839	0	47	4,222	184	3,181	221,679	1704,873
Ind.	839	106,622	20,075	0	0	0	42	210	43	881	106,832	20,118
Iowa	2,610	71,715	183,253	4	49	52	48	2,122	578	2,662	73,886	183,883
Mich.	1,778	342,439	3348,961	239	8,594	29,911	137	62,187	97,638	2,154	413,220	3476,510
Minn.	1,279	33,826	36,417	25	85	102	24	235	555	1,328	34,146	37,074
Mont.	129	2,541	3,659	0	0	0	1	25	200	130	2,566	3,859
Nebr.	517	8,842	16,500	0	0	0	362	3,736	1,429	879	12,578	17,929
N.Dak.	499	5,958	2,288	21	67	0	0	0	0	520	6,025	2,288
Ohio	2,031	162,556	1577,656	10	1,069	59,300	300	11,175	86,584	2,341	174,800	1723,540
S.Dak.	686	19,074	3,737	0	0	0	8	13	16	694	19,087	3,753
Wis.	2,117	277,988	1308,801	350	5,824	1,702	1	1	0	2,468	283,813	1310,503
Wyoming	18	85	158	0	0	0	0	0	0	18	85	158
Total	16,010	1252,207	8223,743	683	16,527	91,067	984	84,034	167,227	17,677	1352,768	8502,037

Chemicals, Quantities Used, September 1, 1921 to December 31, 1931.

Table 18, Data showing, by States, quantities of chemicals used in the barberry eradication campaign from September 1, 1921 to December 31, 1931.

State	Salt (Tons)				Sodium Arsenite (Gals.)				Kerosene (Gallons)		
	Furnished by -				Furnished by -				Furnished by -		
	Property Owner	State Agency	C. P. G. R.	U.S.D.A.	Total	C. P. G. R.	U.S.D.A.	Total	Property Owner	U.S.D.A.	Total
Colo.	0	0	0	10.68	10.68	0	0	0	1/14.	80.	94.
Ill.	.75	58.954	31	433.4975	524.2015	0	77	77	0	972	972
Ind.	.835	0	0	78.068	78.903	0	0	0	0	318	318
Iowa	44.2225	0	20.69	235.1945	300.107	0	41.125	41.125	404.25	1,454.5	1,858.75
Mich.	.03	0	8.49	611.44	619.96	3/175.6	129.3	304.9	0	11,341	11,341
Minn.	3.146	.84	9.21	91.002	104.198	3/100.5	27.254	4127.75	0	43.652	43.65
Mont.	.32	0	0	9.13	9.45	0	0	0	0	30	30
Nebr.	.156	0	8.55	27.28	35.986	0	0	0	151.5	5,377.5	5,529
N. Dak.	19.73	6.65	0	6.09	32.47	0	7	7	0	0	0
Ohio	3.04	907.11	0	39.78	949.93	16.2	30.1	46.3	5,2165/	1,729	6,945
S. Dak.	14.47	0	17.85	18.95	51.27	0	0	0	0	22	22
Wis.	.27	502.986	70	147.937	721.193	408	190	598	0	0.3756/	0.375
Wyo.	.05	0	0	.405	.455	0	0	0	0	0	0
Total	87.0195	1476.54	165.79	1709.454	3438.8035	4700.3	501.775	5202.075	5785.75	21,368.025	27,153.775

Furnished by C.P.G.R.

3/ Ethylene oxide

4/ includes 4 lbs. ammonium thiocyanate

Furnished by State

1/ 10 pounds sodium chlorate

2/ 10 gallons of drip oil

5/ 4934 gallons kerosene

6/ .375 gallons carbon bisulphide

Grand Summary, Original Bushes, Sprouting Bushes, and Seedlings, January 1 to December 31, 1931.

Table 19. Data showing, by States, the number of bushes, sprouting bushes, and seedlings found and destroyed in all surveys in the barberry eradication campaign, from January 1 to December 31, 1931.

State	Original bushes		Sprouting bushes		Seedlings		Grand Total	
	: Found	: Destroyed	: Found	: Destroyed	: Found	: Destroyed	: Found	: Destroyed
Colorado	762	762	0	0	300	300	1,062	1,062
Illinois	11,004	11,004	701	701	5,492	5,492	18,259	18,259
Indiana	2,086	2,086	9	10	337	337	2,432	2,433
Iowa	3,494	3,494	832	832	2,519	2,519	6,845	6,845
Michigan	15,135	15,135	1,792	1,792	41,412	41,412	58,339	58,339
Minnesota	3,879	3,879	9	9	177	177	4,065	4,065
Montana	27	27	0	0	179	179	206	206
Nebraska	88	88	0	0	131	131	219	219
North Dak.	44	44	75	75	639	639	758	758
Ohio	9,710	9,717	1,503	1,503	13,015	13,015	24,228	24,235
South Dak.	171	171	24	24	281	281	476	476
Wisconsin	29,115	29,686	84	84	28,816	30,971	58,015	60,641
Wyoming	2	2	0	0	2	2	4	4
Total	76,579	76,095	5,029	5,030	93,300	95,455	174,908	177,542

Grand Summary, Original Bushes, Sprouting Bushes, and Seedlings, 1918 - 1931.

Table 20. Data showing, by States, the number of bushes, sprouting bushes, and seedlings found and destroyed in all surveys in the barberry eradication campaign, from April 1, 1918 to December 31, 1931.

State	Original Bushes		Sprouting Bushes		Seedlings		Grand Total	
	Found	Destroyed	Found	Destroyed	Found	Destroyed	Found	Destroyed
Colo.	27,428	27,427	7,022	7,022	19,830	19,830	54,280	54,279
Ill.	412,843	412,843	23,436	23,436	2,184,563	2,184,563	2,620,842	2,620,842
Ind.	204,390	204,388	20,013	20,012	24,124	24,124	248,527	248,524
Iowa	832,834	832,828	32,665	32,665	216,758	216,758	1,082,257	1,082,251
Mich.	796,397	796,397	5,654	5,654	4,949,129	4,949,129	5,751,180	5,751,180
Minn.	804,357	804,357	52,668	52,668	64,288	64,288	921,313	921,313
Mont.	13,246	13,238	5,338	5,338	21,924	21,924	40,508	40,500
Nebr.	100,000	100,000	16,972	16,972	24,446	24,446	141,418	141,418
N. Dak.	23,758	23,758	2,774	2,774	2,831	2,831	29,363	29,363
Ohio	420,687	420,687	20,794	20,794	1,872,929	1,872,929	2,314,410	2,314,410
S. Dak.	61,774	61,774	43,205	43,205	29,306	29,306	134,285	134,285
Wis.	3,565,116	3,565,107	92,820	92,820	1,488,132	1,488,126	5,146,068	5,146,052
Wyo.	4,209	4,209	653	574	251	251	5,113	5,034
Total	7,267,039	7,267,013	324,014	323,934	10,898,511	10,898,505	18,489,564	18,489,452

GRAND SUMMARY BY YEARS, ORIGINAL BUSHES, SPROUTING BUSHES, AND SEEDLINGS, 1918 to 1931.

Table 21. Data showing, by calendar years, the total numbers of original bushes, sprouting bushes, and seedlings found and destroyed in all surveys in the barberry eradication campaign, from April 1, 1918 to December 31, 1931.

Year	Original Bushes		Sprouting Bushes		Seedlings		Totals	
	Found	Destroyed	Found	Destroyed	Found	Destroyed	Found	Destroyed
1918	1,842,239	1,690,475	1,996	1,996	500	500	1,844,735	1,692,971
1919	2,096,663	2,025,389	17,874	17,874	3,500	3,500	2,117,437	2,046,763
1920	1,506,007	518,315	33,148	33,148	1,500	1,500	1,540,655	552,963
1921	175,662	209,647	27,697	27,697	18,557	18,557	221,916	255,901
1922	209,397	729,721	64,352	63,883	69,733	69,733	343,482	863,337
1923	233,161	251,013	106,700	106,145	3,665,581	3,610,681	4,005,442	3,967,839
1924	295,814	388,632	21,852	21,850	847,771	844,485	1,165,437	1,254,967
1925	142,550	149,822	17,036	17,141	701,796	754,505	861,382	921,468
1926	204,530	723,580	16,149	16,504	2,062,689	2,064,805	2,283,368	2,804,889
1927	207,446	223,859	5,899	6,903	1,475,209	1,475,284	1,688,554	1,705,346
1928	114,416	115,031	2,849	2,849	1,407,800	1,407,990	1,524,855	1,525,870
1929	103,163	104,267	1,247	1,248	446,070	446,170	550,480	551,685
1930	61,074	61,167	2,184	2,364	104,715	105,340	167,973	168,871
1931	75,517	76,095	5,031	5,032	93,300	95,455	173,848	176,582
Totals	7,267,039	7,267,013	324,014	323,934	10,898,511	10,898,505	18,489,564	18,489,452

NUMBERS OF BARBERRY BUSHES AND SEEDLINGS DESTROYED 1918-1931



